

REMARKS

Claims 1-9 and 11-22 are pending in this application. By this Reply, claim 1 is amended and claim 10 is canceled without prejudice or disclaimer. Reconsideration and withdrawal of the rejections are respectfully requested in view of the foregoing amendment and following remarks.

Entry of the amended claims is proper under 37 C.F.R. §1.116 since the amendments: (1) place the application in condition for allowance (for the reasons discussed herein); (2) do not raise any new issues requiring further search and/or consideration (since the amendments amplify issues previously discussed throughout prosecution without incorporating additional subject matter); (3) satisfy a requirement of form asserted in the previous Office Action; and/or (4) place the application in better form for appeal (if necessary). Entry is thus requested.

Claims 1-7, 9 and 12 stand rejected under 35 U.S.C. § 102(e) over Kumar et al. (U. S. Patent No. 5,852,389) (hereinafter Kumar). This rejection is respectfully traversed.

Claim 1 has been amended to include the features of allowable claim 10. Consequently, is respectfully submitted that claim 1 is in condition for allowance and that Kumar fails to disclose all the claimed features. Claims 2-9 and 12 depend from claim 1 and are allowable for at least the reasons discussed above with respect to claim one, as well as because of the additional features recited in those claims. Withdrawal of this rejection is thus respectfully requested.

Claim 8 stands rejected under 35 U.S.C. § 103(a) over Kumar. This rejection is respectfully traversed.

Kumar fails to establish a prima facie case of obviousness, as required by Section 103. For example, claim 8 depends from claim 1. As discussed above, claim 1 has been amended to include the allowable features of claim 10. Consequently, it is respectfully submitted that claim 8 is allowable. Withdrawal of this rejection is thus respectfully requested.

Claims 13 and 14 stand rejected under 35 U.S.C. § 102(e) over Kumar. This rejection is respectfully traversed.

Kumar fails to disclose all the claimed features, as required by Section 102. For example, Kumar fails to disclose at least a first amplitude invariant phase shifter for shifting a phase of a received signal at prescribed intervals within a phase shifting range of approximately 0~360°, a quadrature hybrid coupler for separating an output of the first amplitude invariant phase shifter into I and Q channel signals shifted substantially 90° in phase relative to each other, a second amplitude invariant phase shifter for shifting a phase of the I channel signal by a first amplitude within a phase shifting range of approximately 0~90°, and a third amplitude invariant phase shifter for shifting a phase of the Q channel signal by a second amplitude within a phase shifting range of approximately 0~90°, as recited in claim 13.

Kumar relates to a direct QAM modulator. Referring to Kumar Figures 1A and 1B, an RF oscillator 10 provides an input signal to a Lange coupler 11. Lange coupler 11 provides an in-phase (0°) output and a quadrature (-90°) output. The in-phase output of the

coupler 11 is provided to a first rat-race coupler 12, and the quadrature output of the coupler 11 is provided to a second rat-race coupler 13. Each of the rat-race couplers 12, 13 generates a 0 degree output and a 180 degree output.

The Kumar modulator additionally includes first and second variable phase shifters 18, 19. The first and second variable phase shifters 18, 19 are respectively coupled to receive outputs 35A and 37A of first and second single pole double throw switches 14, 15, which switch between the two outputs of the rat-race couplers. Moreover, each of the first and second variable phase shifters 18, 19 provide only a 40 degree phase shift over the varactor bias voltage range. See column 4, lines 55-56.

The Patent Office asserts that Kumar discloses a first amplitude invariant phase shifter (Figure 1A, element 11), a second amplitude invariant phase shifter (Figure 1B, element 18), and a third amplitude invariant phase shifter (Figure 1B, element 19). The Patent Office further asserts that although Kumar does not specifically disclose that the phase shifters are amplitude invariant, it is "inherent for a good phase shifter to be amplitude invariant." Moreover, with respect to Kumar's failure to disclose the ranges recited in the claims, the Patent Office asserts that "where the general condition of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art."

With respect to be amplitude invariance of the phase shifters, Applicant respectfully submits that although it may be preferable that a phase shifter be amplitude invariant, such a feature is not inherent in Kumar and is therefore not disclosed.

For example, as recently stated by the Court of Appeals for the federal circuit in Rosco, Inc. v. Mirror Lite Co., 304 F.3d 1373, 64 U.S.P.Q.2d (BNA) 1676 (Fed. Cir. 2002),

Under the doctrine of inherency, if an element is not expressly disclosed in a prior art reference, the reference will still be deemed to anticipate a subsequent claim if the missing element "is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill."

Cont'l Can Co. v. Monsanto Co., 948 F.2d 1264, 1268, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991). "Inherent anticipation requires that the missing descriptive material is 'necessarily present,' not merely probably or possibly present, in the prior art." Trintec Indus., Inc. v. Top-U.S.A. Corp., 295 F.3d 1292, 1295, 63 U.S.P.Q.2d 1597, 1599 (Fed. Cir. 2002) (quoting In re Robertson, 169 F.3d 743, 745, 49 U.S.P.Q.2d 1949, 1950-51 (Fed. Cir. 1999)).  
(Emphasis added).

Thus, although according to the Patent Office, it would be preferable for the phase shifter to be amplitude invariant, such disclosure is only "merely probably or possibly present" in the Kumar disclosure. Consequently, the feature does not meet the requirement to be considered and inherent disclosure. Accordingly, for at least this reason it is respectfully submitted that Kumar fails to disclose all of the claimed features.

With respect to the range of phases of the phase shifter, it is respectfully submitted that the claimed range is not an optimum subset of the range disclosed by Kumar, and therefore does not merely involve routines skill in the art to determine such ranges. For

example, the first amplitude invariant the shifter asserted by the Patent Office has a range of  $0^\circ \sim -90^\circ$ . The claimed first amplitude invariant phase shifter, on the other hand, has a range of  $0^\circ \sim 360^\circ$ . The claimed range is thus greater than the disclosed range of Kumar and is therefore not an optimum subset of the range disclosed by Kumar. Similarly, with respect to the second and third amplitude invariant phase shifters asserted by the Patent Office, the disclosed range in Kumar is  $0^\circ \sim 40^\circ$ . The claimed range, on the other hand, is  $0^\circ \sim 90^\circ$ . Again, the claimed range is not an optimum subset of the range disclosed by Kumar. Consequently, for at least this reason, the assertion by the Patent Office with respect to optimum values being a general condition of a claim disclose in the prior art is inapposite. Consequently, for at least this reason, it is respectfully submitted that Kumar fails to disclose all the claimed features.

Consequently, for at least these reasons, it is respectfully submitted that Kumar fails to disclose all of the features of claim 13. Claim 14 depends from claim 13, and is allowable for at least the reasons discussed above with respect to claim 13. Because Kumar fails to disclose all the claimed features, it is respectfully requested that this rejection be withdrawn.

Claims 15 and 19 stand rejected under 35 U.S.C. § 102(b) over Belcher et al. (U.S. Patent No. 5,760,646) (hereinafter Belcher). This rejection is respectfully traversed.

Claims 15 broadly recites features of the preferred embodiment. It is respectfully submitted that Belcher fails to disclose all of the claimed features, as required by Section 102.

For example, Belcher fails to disclose a circuit for a high power amplifier including, inter alia, a delay to delay the second signal by a prescribed time period, and a fast phase-

amplitude controller to compare amplitudes and phases of the reference signal and the delayed second signal to provide the control signal.

The Patent Office asserts that a delay is inherent for various components. The Patent Office further asserts that the component delay may or may not be random, and that the delay is "by its very nature, is for a prescribed time period." Additionally, the Patent Office admits that the delay time may or may not change.

As discussed above, for a feature to be inherent in a disclosure, the "[i]nherent anticipation requires that the missing descriptive material is 'necessarily present,' not merely probably or possibly present, in the prior art." Consequently, is respectfully submitted that components that may or may not have a delay cannot constitute an inherent disclosure of a delay circuit.

Additionally, as admitted by the Patent Office, the delay caused by the components in Belcher "may or may not be random." According to the discussion above with respect to inherency, this is not enough to anticipate a delay for a "prescribed time period." Specifically, a prescribed time period is a known amount of time. Because the delay in the components of Belcher may or may not be random, there is no inherent disclosure of a prescribed time delay. Rather, it is only "probably or possibly present." See Rosco, Inc. v. Mirror Lite Co.

Moreover, although certain components may or may not have a delay associated with them, Applicant respectfully submits that there is a distinction between a component having a delay and the positive recitation of "a delay," which is a specific element of the circuit.

Accordingly, the assertion that various elements may have a delay associated with them is not equivalent to the positive recitation of a delay element.

Consequently, for at least all of these reasons, it is respectfully submitted that Belcher fails to disclose all of the claimed features, as required by Section 102. Claim 19 depends from claim 15, and is allowable for at least the reasons discussed above with respect to claim 15. Because Belcher fails to disclose all the claimed features, withdrawal of this rejection is respectfully requested.

Applicant acknowledges with appreciation the indication of allowable subject matter and claims 10, 11, 16-18, and 20-22. Because the features of claim 10 have been incorporated into claim 1, claim 10 has been canceled.

### CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, Anthony H. Nourse, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,  
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